



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,483	12/31/2003	Ulrich Bonne	H0006074-0760(1100.123310	9843
128	7590	04/17/2006		EXAMINER
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			DOLE, TIMOTHY J	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/750,483	BONNE, ULRICH
	Examiner	Art Unit
	Timothy J. Dole	2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 16-30 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 6-15 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 October 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/19/04, 8/24/05</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-15, 29 and 30, drawn to an electrode configuration for producing ionization effects, classified in class 324, subclass 459.
  - II. Claims 16-28, drawn to ionizing a fluid for analysis, classified in class 324, subclass 464.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the ionization system of claims 16-28 can use any electrode configuration commonly used in the prior art. The subcombination has separate utility such as providing ionization for measuring pressure.

3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. This application contains claims directed to the following patentably distinct species:
  - Species I: a sensor with four electrodes situated in multiple planes.
  - Species II: a sensor with two electrodes each with a plurality of prongs.

Species III: a sensor with two electrodes in a single plane.

The species are independent or distinct because they each claim a different electrode configuration.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

5. During a telephone conversation with attorney of record John Shudy, Jr. on April 4, 2006, a provisional election was made without traverse to prosecute the invention of Group I, Species II, claims 6-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-5 and 16-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Drawings***

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the spectrometer, A.C. voltage

Art Unit: 2858

supply, D.C. voltage supply, and processor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Vojak et al. (US 2002/0113553).

Referring to claim 6, Vojak et al. discloses an ionization sensor comprising: a first electrode (fig. 1A (14)) having a first plurality of prongs (fig. 1A (prongs 14b extending from the left electrode, 14)) situated approximately in a plane (fig. 1A); and a second electrode (fig. 1A (14)) having a second plurality of prongs (fig. 1A (prongs 14b extending from right electrode, 14)) situated approximately in the plane (fig. 1A) and proximate to the first plurality of prongs to form a plurality of electrical discharge gaps between the first and second electrodes (fig. 1A and paragraph [0014]).

Referring to claim 7, Vojak et al. discloses the sensor as claimed, further comprising a channel (fig. 1A (16)), wherein the channel comprises the first and second electrodes (fig. 1A).

Referring to claim 8, Vojak et al. discloses the sensor as claimed wherein the channel is a fluid flow channel (paragraph [0014]).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vojak et al. in view of Wentworth et al. (US 5,153,519).

Referring to claim 9, Vojak et al. discloses the sensor as claimed except for a spectrometer optically coupled to the plurality of electrical discharge gaps.

Wentworth et al. discloses an ionization sensor comprising a spectrometer (fig. 1 (40)) optically coupled to the plurality of electrical discharge gaps (column 6, line 27-34).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the spectrometer of Wentworth et al. into the sensor of Vojak et al. for the purpose of more accurately detecting the discharge by making it possible to analyze the system both during and after the spark (abstract).

Referring to claim 10, Vojak et al. discloses the plane is approximately parallel to a fluid flow direction of the channel (fig. 1A and paragraph [0014]).

Referring to claim 15, Vojak et al. discloses the sensor as claimed except for a processor connected to the spectrometer.

Wentworth et al. discloses a processor (fig. 1 (41)) connected to the spectrometer. Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the processor of Wentworth et al. into the sensor of Vojak et al. for the purpose of recording the output of the spectrometer with respect to time (column 6, lines 34-36).

11. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vojak et al. in view of Wentworth et al. as applied to claim 9 above, and further in view of Wiegand, Jr. (US 3,657,600).

Referring to claim 11, Vojak et al. as modified discloses the sensor as claimed except for a third electrode situated approximately in the plane and proximate to the first and second electrodes; and a fourth electrode situated approximately in the plane and proximate to the first and second electrodes.

Wiegand, Jr. discloses an ionization sensor comprising a first electrode (fig. 3 (12)) situated approximately in a plane (fig. 3); a second electrode (fig. 3 (14)) situated approximately in the plane (fig. 3); a third electrode (fig. 3 (16)) situated approximately in the plane and proximate to the first and second electrodes (fig. 3); and a fourth electrode (fig. 3 (20)) situated approximately in the plane and proximate to the first and second electrodes (fig. 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the electrodes of Wiegand, Jr. into the sensor of Vojak et al. as modified for the purpose of providing an improved discharge (column 3, lines 5-11).

Referring to claim 12, Vojak et al. as modified discloses the sensor as claimed except wherein an A.C. voltage supply is connected to the first and second electrodes; and a D.C. voltage supply is connected to the third and fourth electrodes.

Wiegand, Jr. discloses an A.C. voltage supply (fig. 3 (28)) is connected to the first and second electrodes (fig. 3); and a D.C. voltage supply (fig. 3 (22)) is connected to the third and fourth electrodes (fig. 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the electrodes of Wiegand, Jr. into the sensor of Vojak et al. as modified for the purpose of providing power to the electrodes to provide an improved discharge (column 3, lines 5-11 and column 4, lines 8-15).

12. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vojak et al., Wentworth et al. and Wiegand, Jr. as applied to claims 11 and 12 above, and further in view of Pompei et al. (US 4,016,524).

Referring to claim 13, Vojak et al. as modified discloses the sensor as claimed except wherein first and second electrodes have a dielectric coating.

Pompei et al. discloses an ionization sensor wherein first and second electrodes have a dielectric coating (column 2, lines 17-20 and 32-41).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the dielectric coating of Pompei et al. into the sensor of Vojak et al. as modified for the purpose of insulating the electrodes from moisture, whereby leading to more accurate results (column 3, lines 36-45).

Referring to claim 14, Vojak et al. as modified discloses the sensor as claimed except wherein the third and fourth electrodes have no dielectric coating.

Wiegand et al. discloses the third and fourth electrodes have no dielectric coating (fig. 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the uncoated electrodes of Wiegand, Jr. into the sensor of Vojak et al. as modified for the same purpose as given in claim 11, above.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to ionization sensors.

USPN 6,218,668 to Luke: This patent shows an ionization sensor with coplanar interdigitated electrodes.

USPN 5,777,338 to He: This patent shows an ionization sensor with coplanar interdigitated electrodes.

USPN 5,217,510 to Logan et al.: This patent shows an ionization sensor with a first electrode with a plurality of projections and an optical access window.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229. The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJD

*T. J. Dole*

*Anjan Deb*

ANJAN DEB  
PRIMARY EXAMINER